

УДК 330.341.339.9:004.9

JEL Classification: L15; M13; M31

DOI 10.35433/ISSN2410-3748-2023-2(33)-7

Olena Yushkevych

**Doctor of Economic Sciences, Professor
Department of Management, Business
and Marketing Technologies
Zhytomyr Polytechnic State University
<https://orcid.org/0000-0002-6906-5799>**

Olga Vikarchuk

**PhD in Economics Associate Professor
Department of Management, Business
and Marketing Technologies
Zhytomyr Polytechnic State University
<https://orcid.org/0000-0001-7574-5347>**

Yevhena Zaburmekha

**Ph. D. in Economics Associate Professor
Department of marketing and management
Khmelnyskyi Cooperative Trade and Economic Institute
<https://orcid.org/0000-0003-2223-3887>**

MARKETING RESEARCH OF CONSUMER BEHAVIOUR IN A DIGITAL INFRASTRUCTURE ENVIRONMENT

The article is devoted to marketing research on consumer behaviour in the environment of digital infrastructure. It has been established that marketing research of consumer behaviour in the environment of digital infrastructure models strong systems of interaction with consumers by accurately defining their needs and requests, individualising products and services, operational tracking, and responding to the behaviour of each specific consumer. Research has shown that in a digital infrastructure environment, price is not the primary factor determining choice. First of all, the consumer correlates the characteristics and properties of the goods with his ideal ideas about them (the standard of consumer properties), and in the event of a match, he proceeds to evaluate the possibilities of its purchase, taking into account the price and available income. It has been proven that the environment of the digital infrastructure determines a rational consumer choice under the conditions of a high speed of the reproduction cycle, which singles out time as the main valuable resource, which is associated with the growth of alternative costs of the consumer demand formation process and its implementation. It was found that the development of digitalization has an ambiguous effect on the behaviour of the modern consumer: on the one hand, the possibilities of consumer access to new goods and services are expanding in the shortest possible time, and on the other hand, the level of consumer requirements is

increasing, which increases competition between manufacturers and stimulates them to search for new forms of interaction with the consumer. The stages of making a purchase decision by a consumer and the possibility of influence on their opinion by digitalization tools are outlined: awareness of the need, search for information on how to solve problems, evaluation of found solutions to the problem, purchase decision, reaction to the purchase. The elements of digitalization strategies for purchasing behaviour in the context of digital transformation are defined. The services of digital presentation of the product and delivery of goods have been updated, and the frequency of online purchases has increased due to changes in the structure of consumption. It has been proven that the active development of digital technologies and methods of their use necessitated an evolutionary transition from the category of e-services to “digital services”, which take into account the complex influence of the Internet and accompanying digital technologies on the formation of modern business models of companies and the format of their interaction with product consumers and services.

Key words: *marketing research, consumer behaviour, digital infrastructure environment, digitalization strategies, digital transformation tools, digital product presentation, consumption structure.*

МАРКЕТИНГОВЕ ДОСЛІДЖЕННЯ ПОВЕДІНКИ СПОЖИВАЧІВ В СЕРЕДОВИЩІ ЦИФРОВОЇ ІНФРАСТРУКТУРИ

Стаття присвячена маркетинговим дослідженням поведінки споживачів в середовищі цифрової інфраструктури. Встановлено, що маркетингове дослідження поведінки споживачів в середовищі цифрової інфраструктури моделює міцні системи взаємодії зі споживачами шляхом точного визначення їх потреб та запитів, індивідуалізації продукції та обслуговування, оперативного відстеження та реагування на поведінку кожного конкретного споживача. Дослідження показали, що в умовах середовища цифрової інфраструктури ціна не є основним фактором, що визначає вибір.

Насамперед споживач співвідносить характеристики та властивості благ з його ідеальними уявленнями про них (еталоном споживчих властивостей), і у разі збігу, переходить вже до оцінки можливостей його придбання з урахуванням ціни та наявного доходу. Доведено, що середовище цифрової інфраструктури, визначає раціональний споживчий вибір за умов високої швидкості відтворювального циклу, що виокремлює час як основний цінний ресурс, з яким пов'язане зростання альтернативних витрат процесу формування споживчого попиту та його реалізації.

З'ясовано, що розвиток цифровізації неоднозначно впливає на поведінку сучасного споживача – з одного боку, розширюються можливості доступу споживачів до нових товарів та послуг у найкоротші терміни, а з іншого – підвищуються рівень споживчих вимог, що посилює конкуренцію між виробниками та стимулює їх до пошуку нових форм взаємодії зі споживачем. Окреслено етапи прийняття купівельного рішення споживачем та можливість впливу на їх думку інструментів цифровізації: усвідомлення потреби, пошук інформації про те як вирішити проблем, оцінка знайдених варіантів вирішення проблеми, купівельне рішення, реакція на покупку. Визначено елементи стратегій цифровізації купівельної поведінки в контексті цифрової трансформації. Актуалізовано послуги цифрової презентації продукту та доставки товарів, зростання частоти онлайн купівель внаслідок змін у структурі споживання. Доведено, що активний розвиток цифрових технологій та способів їх використання зумовив необхідність еволюційного переходу від категорії e-послуг до «цифрових послуг», що враховують комплексний вплив мережі інтернет та

супутніх цифрових технологій на формування сучасних бізнес-моделей компаній та формат їх взаємодії зі споживачами продуктів та послуг.

Ключові слова: маркетингові дослідження, поведінка споживача, середовище цифрової інфраструктури, стратегії цифровізації, інструменти цифрової трансформації

With the development of information technologies and online sales, the environment for marketing research is changing significantly. Currently, marketing research on the behaviour of the virtual consumer in the environment of digital infrastructure is relevant. In this regard, the concept of product sales is being transformed, and the methods of collecting information about consumers are changing. It should be noted that the process of forming consumer behaviour in the digital infrastructure is of great importance since market representatives do not have the opportunity to assess the consumer's reaction to a new marketing move. Internet marketers analyse only the statistics of the online store and, on the basis of formulated assumptions, identify features of consumer behavior. Collecting feedback is not always an effective measure of obtaining information about consumers, as it allows you to assess the situation after the fact and does not reflect many moments of interaction. Marketing research of consumer behaviour in a digital infrastructure environment models strong systems of interaction with consumers by accurately defining their needs and requests, individualising products and services, operational tracking, and responding to the behaviour of each specific consumer.

Analysis of recent research and publications. A significant contribution to the development of applied aspects of marketing research on consumer behaviour in the environment of digital infrastructure was made by such domestic scientists as N. Butenko and A. Koshchuk, who study the trends of formation and development of enterprises' digital transformation in the context of the fourth industrial revolution development [2]. P. Grynko carried out a scientific search for the peculiarities of using modern online digital marketing platforms in the international business activities of domestic

enterprises [4]. The demonstration of digital technology usage to create effective communication on the Internet was provided by L. Koval, S. Romanchuk [5]. The essence of digitization, which is based on digital computer technologies with a description of the basic components of the digital economy – innovative services and products—is substantiated by M. Oklander [6]. Features, channels, and basic methods of digital marketing in modern economic conditions are studied by V. Rybak [9]. Modern science systematically studies the behaviour of consumers, but it cannot give unequivocal answers that would allow explaining and predicting all possible options for buyer actions. Therefore, the peculiarities of consumer behaviour in the environment of digital infrastructure require additional study.

The purpose of the article. To investigate the peculiarities of the organisation of marketing research on consumer behaviour in the digital infrastructure environment.

Presenting the main material. The development of market relations, as well as the expansion of the product supply in the second half of the 20th century, served as an impetus for the study of marketing in Europe and the United States. The processes of large and medium-sized business development, the growth of competition among manufacturers contributed to the study of the peculiarities of consumer preferences. American marketers James Angel, Roger Blackwell, and Paul Miniard paid considerable attention to the study of consumer behaviour.

In modern society, which is also called a consumer society, the main role is assigned to improving the well-being of the population's broad sections. The consumer market is a complex structured system of economic, psychological, technological relations between producers and consumers, sellers and buyers, arising in the process of exchanging goods for the purpose of personal consumption. Numerous participants in such a market act usually in four main social roles: producers, sellers, buyers, and consumers. In addition to these four

roles, in the researched highly developed consumer market, there are many different intermediaries that facilitate the promotion of goods to consumers. They include wholesale enterprises, banking institutions, exchanges, insurance companies, transport communications, and marketing organizations. Each of us is a consumer of goods and services, and that is why our daily consumption is connected with marketing [3, p. 5].

The digital infrastructure environment affects absolutely all aspects of social relations, starting from the way they are organised at various stages of the reproductive cycle, the nature of interactions between economic agents, ending with the results of their activities and the achievement of a certain level of social well-being. It should be noted that there are significant changes in the system of needs; the focus is on the needs to improve the quality of consumption and not the number of satisfied needs. Research has shown that in a digital infrastructure environment, price is not the primary factor determining choice. First of all, the consumer correlates the characteristics and properties of the goods with his ideal ideas about them (the standard of consumer properties), and in the case of a match, he proceeds to evaluate the possibilities of its purchase, taking into account the price and available income.

Improving the quality of consumption in the environment of digital infrastructure implies meeting needs with the help of goods, the choice of which will be unerring and comfortable. The saturation of the product market with a wide range of related services has led to the fact that the consumer, making a purchase, feels confident that he will receive the necessary benefits. At the same time, there are so many alternative options that choosing among them the one that meets the real needs of the consumer takes too much time. The high speed of the reproduction cycle singles out time as the main valuable resource, which is associated with the growth of alternative costs of the process of consumer demand formation and its implementation. This should take into account the environment of the digital infrastructure, which determines rational consumer

choice under the conditions of digitalization. The higher the level of engagement of the consumer in the digital relationship, the less time he will spend on consumption, thanks to high-speed capabilities and processes. The final satisfaction of needs will depend on the possible speed of implementation of all stages of the purchase and the final receipt of benefits. The value of time spent on consumption is higher the more the consumer is involved in the digital infrastructure environment.

Qualitative marketing research has a certain explanatory orientation, is characterised by a deep study of the investigated aspects of consumer behaviour, gives an idea of the hidden motives and basic needs of consumers, and involves the use of a wide range of specific research methods and tools. Formalised methods are of particular interest because they are characterised by orderly procedures, which allow the clear algorithms' application in the digital environment. However, at present, digital technologies are able to formalise many qualitative methods of marketing research if it is possible to establish the relationship between the factors that are studied. The main qualitative marketing studies of consumer behaviour usually include: group (focus group) interviews; individual in-depth interviews; observation; experiments; protocol analysis; and physiological measurements [6, 8].

The modern market is a buyer's market, which determines the necessity and expediency of an in-depth analysis of demand, its nature, causes, and factors influencing changes in demand for the formation of consumer loyalty.

The development of digitalization has an ambiguous effect on the behaviour of the modern consumer – on the one hand, the possibilities of consumer access to new goods and services in the shortest possible time are expanding, and on the other hand, the level of consumer requirements is increasing, which increases competition between manufacturers and stimulates them to find new forms of interaction with consumers.

When making a purchase decision, each consumer goes through several stages: awareness of the need – search for information on how to solve the problem – evaluation of the found options for solving the problem – purchase decision – reaction to the purchase [5]. At each stage, the enterprise can influence the opinion of consumers by making certain marketing efforts and using digitalization tools. The key elements of marketing research on the process of making purchase decisions in the context of digital transformation are listed in Table 1.

Table 1.

Marketing research of the process of making purchase decisions in the context of digital transformation

The stage of the purchase decision-making process	The stage of the purchase decision-making process	The stage of the purchase decision-making process
Awareness of the need, search for information	Integration of all shopping channels	Combining digital and physical experiences using mobile applications and devices with Bluetooth support, sending personalised recommendations and timely notification of promotions on shelves near consumers, and contextual advertising
Information search	Data analytics	Leveraging the power of big data (BigData) to gain insights into consumer behaviour and preferences
Search for information and evaluate options	Digitization of the physical store	Digital navigation inside the premises, distribution of contextual advertising, useful information for consumers
Evaluation of options and purchase decision	Enhanced payment options	Installation of self-service terminals and use of mobile applications to pay for purchases
Reaction to the purchase	Digital customer service	The spread of artificial intelligence and the popularity of chat applications open up opportunities for automation of a number of routine business processes, namely customer support, using a smart bot to answer standard questions or process returns, and interaction and communication in real time

Source: developed by the authors according to [4; 9]

According to the Deloitte study “Consumer Attitudes of Ukrainians in 2020” [11], 63% of Ukrainians believe that the quarantine has affected their

consumer habits, and 32% are planning to increase online shopping in the future. At the same time, 18% of respondents noted an increase in the frequency of online purchases, and 22% noted an increase in the cost of online purchases. It was established that 18% of Ukrainians choose food products more thoughtfully when shopping online. From the point of view of determining the priorities of the digital transformation of the marketing activities of retail enterprises, important trends are that the decision of 63.7% of respondents is influenced by the presence of discounts; for 50%, the possibility of buying goods on credit became important; and 43% prefer contactless payment. In general, new conditions and lifestyles as a result of the transition to remote work and distance learning led to a change in the structure of consumption, an increase in the frequency of online purchases, an increase in their costs, the emergence of new needs for security, and updating the services of digital product presentation and delivery of goods. Based on the given facts, it should be stated that the fight against the pandemic with the measures of quarantine restrictions became an additional catalyst for actual changes, which accelerated the inevitable growth of the online trade market in Ukraine and the formation of new models of consumer behaviour and new customer experiences.

The global market for social networks in 2019 was estimated at 192.950 billion US dollars. According to forecasts, by 2026, it is expected to grow to a level of 25.38% and reach a size of 939.679 billion US dollars [10].

The market for social media platforms is growing exponentially. The increase in demand is not only from millennials but also due to significant adoption by all age groups. In addition, the use of social media platforms has grown significantly due to demand from companies that also use the platforms for marketing purposes. For instance, one app in the Apple App Store (LINE) generated \$6.78 million in global app revenue in June 2020. The main factors expected to foster the growth of social media are that it is increasingly recognised as a platform that helps drive search keywords to company websites,

resulting in increased website traffic and brand popularity and exposure. The proliferation of smartphones also plays an important role in the growth of the market. Social media applications developed for smartphones steadily track activities in order to enhance the relevance of social media marketing [10].

Furthermore, data generated from social media platforms has enabled companies to make marketing and customer-related decisions based on customer data. The analytics performed with the help of these online platforms are considered to be an essential business and marketing tool in today's business environment. To gain real-world insights into consumer perceptions and improve their services and product portfolios, companies around the world are using social media analytics. The rising popularity of social media platforms by various end users for multiple purposes is expected to drive the market over the next 5 years. For example, according to Facebook, it had 1,562 million daily active users as of the first quarter of 2019. Twitter claims that 500 million tweets are sent every day and that 9% more people are using Twitter every day, resuming the growth of social media penetration globally [10].

It should be determined that the increase in available electronic devices connected to the Internet, such as smartphones, phones, and tablets, leads to an increase in the time spent on websites and social networks.

The commodity market was significantly affected during the first months of the emergence of COVID-19, when business operations were disrupted due to the quarantine imposed by the governments of most countries around the world. Measures taken by national governments to contain the spread of the infection have led to a decrease in economic activity and restrictions on the movement of goods and services with countries that are in a state of quarantine. Although e-commerce businesses operating only through social media platforms were negatively impacted, the overall use of such platforms increased significantly during this period. According to the Digital 2022 Global Overview Report, 43% of consumers spent more time on these platforms, and 54%

watched more shows and movies on streaming services [10]. It should be noted that the many new digital behaviours that people have adopted during the quarantine restrictions have led to a significant increase in a variety of digital activities.

The growth of the market for social networking platforms is helping to increase the number of e-commerce platforms that use these platforms for various purposes. Average revenue per user – ARPU (Average Revenue per User) is one of the most important indicators for large social media companies such as Facebook, Instagram, Twitter, and TikTok. ARPU is how much revenue a company makes per user and is an important measure of how successful a business is, especially when it comes to leading social media sites. Table 2 shows the average revenue per user of the world's largest social media platforms.

Analysing the information, we can conclude that, firstly, such an amount of investment indicates that these are not fleeting investments, and secondly, many people want to promote their product or service on the social network they like, which is confirmed by a psycho-emotional connection.

Table 2.

Average revenue per user of the top 10 largest social networks
in the world, 2021

n/p No.	The name of the social networking platform	Average revenue per user, USD USA	Number of social network users: billions of people
1	TikTok	46.86	0.732
2	Facebook	30.75	2.8
3	Linkedin	25.97	0.310
4	Twitter	9.39	0.396
5	YouTube	8.64	2.3
6	Instagram	5.28	1.3

7	Pinterest	3.69	0.459
8	WhatsApp	2.75	2
9	Snapchat	1.73	0.528
10	Reddit	0.49	0.430

Source: constructed by the authors based on data [9;10;11].

The purpose of advertising is to win the market through brand loyalty. Consequently, companies around the world are increasingly investing in social media marketing to achieve business goals. Also, if the company wants to enter completely different markets, for example, Spain, it can advertise on the popular social networks of the country, thereby effectively presenting its products to the target audience. If the goal of the business is to attract as many customers as possible, a presence on social networks is necessary. Social media marketing is the most cost-effective way to advertise any product.

However, the active development of digital technologies and methods of their use necessitated an evolutionary transition from the category of e-services, which are mostly associated with Internet sites and e-commerce, to the category of “digital services”, which take into account the more complex influence of both the Internet and related digital technologies for the formation of modern business models of companies and the format of their interaction with consumers of products and services.

Conclusions. It is important to point out that online user behaviour is related to the actions users take through the digital channels in which they invest their time. Data management and information protection are the main issues that companies must adequately respond to. In this case users feel safe when browsing digital platforms.

The results of the research in this article show that the actions of online users depend on the field of operation. Pre-purchase and post-purchase user

behaviour, as well as user engagement and user interaction in online communities, are important factors to understand in this ecosystem.

Social media advertising is an effective way to increase brand loyalty in the digital economy, as it enables businesses to interact directly with potential customers on a permanent basis. Therefore, the demand for social networks is significantly expanding due to the information field of people and enterprises, the costs of searching, exchanging, and storing information are reduced, and the role of information as a resource in the economic management system is strengthened, which helps the enterprise reach a larger number of consumers, increase income, and accelerate competitiveness. The use of marketing technologies allows for the promotion and realisation of joint resources among enterprises, including goods and services, and the choice of effective methods of promotion for each product separately. It also contributes to increasing the efficiency of their activities. The use of social media in marketing increases brand loyalty, both directly and on a regular basis to interact with potential customers in the digital economy. Many companies understand the importance and necessity of using social media in marketing.

Future research will need to analyse how users make online decisions and which digital marketing methods are perceived as safer by users.

REFERENCES

1. Butenko, N. V., Koshchuk, A. H. (2018) Tsyfrova transformatsiia pidpriemnytskoi diialnosti v rozrizi realizatsii kontseptsii «Industriia 4.0» [Digital transformation business activity in the context of the implementation of the concept of «Industry 4.0»]. *Problemy ekonomiky*, 4, 7–12. [in Ukrainian].
2. Dulkan, A.V. (2014). *Kreativnist firmi yak factor pidvischennya efektyvnosti organizatscii* [Creativity firm as a factor in increasing the

- efficiency organization*]. Retrieved from: <http://studok.net/book/html> [in Ukrainian].
3. Hudz, O. Ye. (2018) Tsyfrova ekonomika: zmina tsinnosti ta oriientyrivy upravlinnia pidpriemstvamy [Digital economy: changing values and guidelines enterprise management]. *Ekonomika. Menedzhment. Biznes*, Vol. 2(24), 4–12. [in Ukrainian].
 4. Hryenko P. L. (2020) *Upravlinnia innovatsiinym rozvytkom biznesu v umovakh tsyfrovoi ekonomiky: teoriia, metodolohiia, praktyka: monohrafiia* [Management of innovative business development in the digital economy: theory, methodology, practice: monograph]. Kharkiv: Vydavnytstvo Ivanchenka I. S., 342 p. [in Ukrainian].
 5. Koval', L.A. Romanchuk, S.A. (2010). *Osnovni aspekty povedinky spozhyvachiv i chynnykiv, scho zumovluut vybir pevnoho typu spozhyvatskoi povedinky* [Main aspects of consumers' behavior and factors, which provide choice of some type of consumers' behavior], Kirovohrads'kyi natsional'nyi tehnicnyi universytet [in Ukrainian].
 6. Oklander, M.A., Oklander, T.O., Yashkina, O.I. (2017). *Tsyfrovyi marketynh – model marketynhu XXI storichchia* [Digital marketing is a marketing model of the 21st century]. Odesa: Astroprint [in Ukrainian].
 7. Rais, E., Traut, Dzh. (2019). *Marketynhovi viiny* [Marketing wars] (V. Stelmakh, Trans.). Kharkiv : Vyd-vo «Ranok» [in Ukrainian].
 8. Ruban, V. V. (2017) Tsyfrovyi marketynh: rol ta osoblyvosti Vykorystannia [Digital marketing: role and features using]. *Ekonomichnyi visnyk Zaporizkoi derzhavnoi inzhenernoi akademii*, 2–2 (08), 20–25 [in Ukrainian].
 9. Turchyn, L., Ostroverkhov, V. (2018). Zastosuvannia CRM-system v marketynhovi dialnostita upravlinni personalom transportnykh pidpriemstv [Application of CRM-systems in marketing and personnel

management of transport enterprises]. *Ekonomichnyi analiz Economic analysis*, 3, Vol. 28, 199–206 [in Ukrainian].

10.Zvit Altimeter «*Stan tsyfrovoho marketynhu 2019*» [*Altimeter report «The*

state of digital marketing 2019»]. www.prophet.com. Retrieved from https://www.prophet.com/wp-content/uploads/2019/07/Altimeter_2019-State-of-Digital-Marketing_PDF.pdf [in English].

12.Deloitte (2020) *Spozhyvatski nastroi ukrainsiv u 2020 rotsi [Consumer sentiment of Ukrainians in 2020]*. Retrieved from: <https://www2.deloitte.com/content/dam/Deloitte/ua/Documents/Press-release/RWD%202020%20UA.pdf>